

TEST EXCAVATIONS ON THE HEADLAND PA AT KAURI POINT, BIRKENHEAD, AUCKLAND, IN 1971

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Abstract. Limited excavations in the interior of a headland pa at Kauri Point, Birkenhead (N42/27; R11/35), revealed signs of brief and transitory occupation, despite the strategic position of the site. This may have been due to the lack of good gardening soils in the vicinity. The small stone assemblage recovered from the excavations shows that the inhabitants were importing raw material for oven stones and tools from a number of sources. Midden deposits consisted mainly of local estuarine shellfish. Very few fish bones were found despite the traditional importance of the area for fishing.

This paper describes test excavations carried out on the headland pa, N42/27 (R11/35), at Kauri Point, Birkenhead. The excavations took place at Easter 1971, under the auspices of the Auckland Institute and Museum, and at the request of the Auckland Harbour Board, owners of the land, who were anxious to establish the significance of the site.

THE SETTING

The site occupies a prominent headland (Fig. 1) on the eastern side of Kendall Bay, on the north shore of the Waitemata Harbour. The deep water of the main harbour channel reaches almost to the foot of the site, although Kendall Bay itself is shallow and tidal. The western side of Kendall Bay is bounded by the higher ground of Kauri Point proper, and beyond this the harbour widens towards its upper reaches. The site occupies a strategic position on the channel, overlooking the approach to the upper harbour.

The headland itself offers an almost ideal setting for a fortified site (Fig. 2). A roughly triangular flat area is bounded on two sides by cliffs about 30 m high, and on the third by a steep slope ending in a smaller cliff at the base. The main approach is along a fairly level but narrow and winding ridge from the north. At the point where the narrow ridge widens to become a flat-topped headland, the natural defences have been strengthened by artificial earthworks. These take the form of two incomplete ditches dug from opposite sides of the ridge, with a steep high scarp on the southern side. It is also possible to reach the site up a steep track from Kendall Bay or, with great difficulty, by scrambling up the cliff on the east side. Both these approaches, however, reach the ridge top in the vicinity of the ditches and outside the defensive scarp.

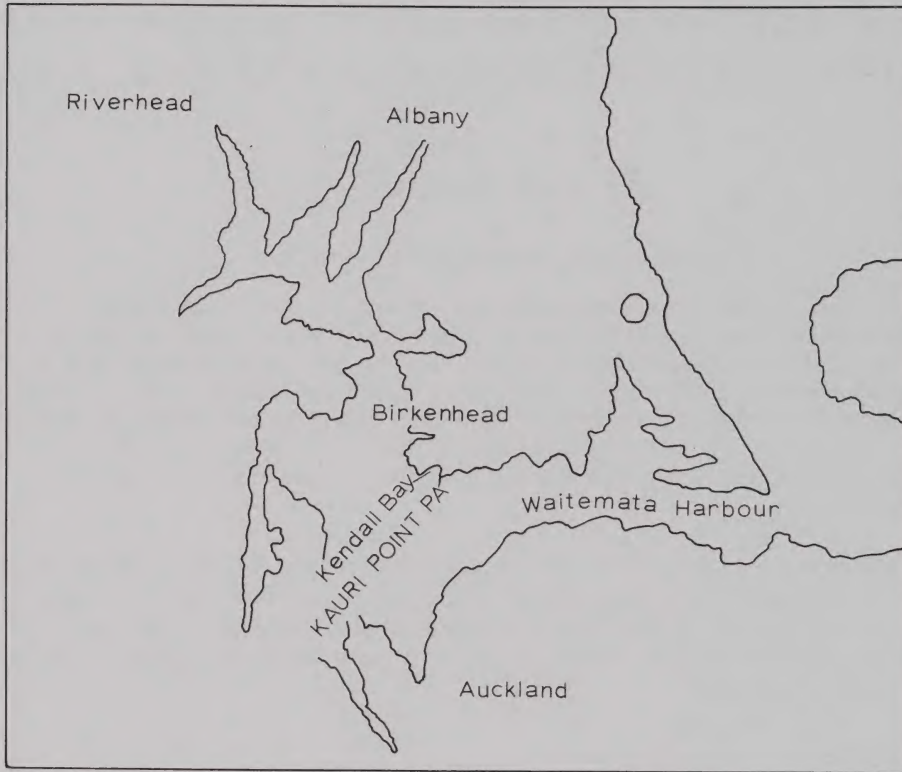


Fig. 1. The location of the pa at Kauri Pt.

The land in this part of the north shore is composed of sandstones of the Waitemata Group (Ballance 1976). The soils developed on these rocks under kauri forest are poor and the area is unlikely to have been attractive for prehistoric horticulture. On the other hand, the marine resources would have been excellent. Estuarine shellfish are to be found at Kendall Bay and elsewhere in the vicinity; rock oysters were probably abundant on the intertidal rocks, and the deep channel would have been an immediate source of fish. There is fresh water, but very little flat land, in Kendall Bay.

TRADITIONAL HISTORY

The names of three pa have been recorded in the general area of Kauri Pt. Unfortunately, the principal authorities disagree about the locations of these pa, and it is by no means certain which name or names refer to the site under consideration here.

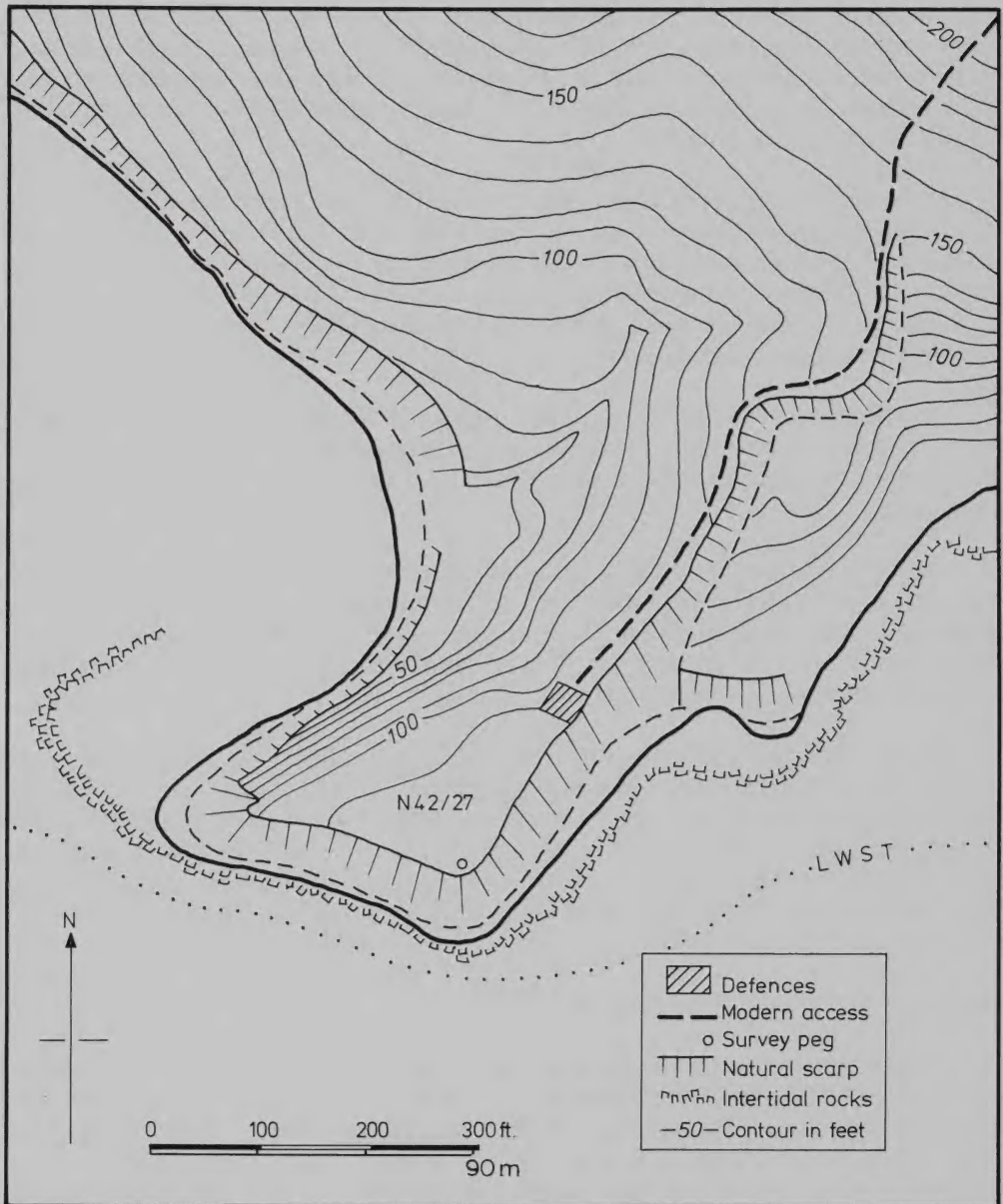


Fig. 2. Contour plan of the headland pa at Kauri Pt, Birkenhead and vicinity. Based on a plan provided by staff of the Auckland Harbour Board in 1971.

The most detailed account of Kauri Pt. is by Graham (1910). The pa which is the focal point of the story was named Te Matarae a Mana, and a footnote to Graham's account points out that "Kauri Point proper is not the bold headland with which that

name is usually associated, but the less majestic point next above it.” This could be interpreted in various ways. Simmons (1980) equates Te Matarae a Mana with N42/27. However, the name could also be taken to apply to a site, now damaged, of which traces remain in the vicinity of the Defence Department wharf near Onetaunga Bay, slightly further up the harbour.

Fenton (1879) mentions Onewa Pa as being “at Kauri Point” and the associated map shows Onewa as being on the west side of Kendall Bay and slightly inland — most probably on the high point now occupied by a water tower and the car park at the entry to the Defence Department land. This area has been extensively modified in recent times. Graham, however, consistently equates Onewa with Northcote Pt., a considerable distance further east.

The third pa was called Maunganui, described by Fenton as “inside Kauri Point” and by Graham as near the trig station on the ridge at the back of Kauri Pt. A few ambiguous remnants of earthworks near the trig may be all that remain of Maunganui.

Te Matarae a Mana (literally the brow or forehead of Mana) was the pa of Te Manaoterangi, a chief of the Kawerau people, who married a sister of Kiwi Tamaki, paramount chief of the Waiohua. Te Manaoterangi lived in the eighteenth century. Onewa was at one time occupied by Tarahawaiki, father of Apihai, one of the Ngati Whatua leaders in the nineteenth century.

On the traditional information that has been published, it is not possible to identify N42/27 with certainty as either of these pa. It may have been known by both these names at different times; it may have been neither. It is evident, however, that the general area of Kauri Pt. was of sufficient importance to both the Kawerau and the Ngati Whatua for them to occupy one or more pa there. Graham states that this part of the harbour was a very important fishing ground, particularly for sharks, and this is likely to have been a major factor in the occupation of N42/27, whatever its name.

BACKGROUND TO THE INVESTIGATION

The existence of the pa had been known for some time; it was among the first sites listed in the New Zealand Archaeological Association’s Auckland Site Record File. When the Birkenhead Borough produced its first revised District Scheme under the Town and Country Planning Act in 1969, no historic sites were listed and several objections were lodged on this point. Staff members of the Anthropology Department, University of Auckland, presented evidence at the hearings, in which they discussed the intact pa on the east side of Kendall Bay and the damaged one further to the west. They stressed the significance of the former, which they tentatively identified as Onewa.

As a result of the hearing, the Auckland Harbour Board, owners of the site, asked for an independent report on it from the Auckland Institute and Museum. The investigations in 1971 led to recognition of the site’s significance, and agreement that it should be preserved if possible. Neither the development of a deep water wharf at Kauri Pt., nor the construction of a second harbour crossing from Avondale to Kauri

Pt., which was under discussion in 1974, eventuated and the site was eventually listed as a place of historic interest in the Birkenhead District Scheme. The Harbour Board's decision that it no longer needed the Kauri Point Estate for harbour development land brought the area before the public eye again in 1984. The pa is now part of the Kauri Point Centennial Park, which consists of some 24 hectares purchased from the Harbour Board by the Birkenhead City Council in 1987, with assistance from the Queen Elizabeth II National Trust. Control is now vested in the new North Shore City Council and the Park is managed by a committee of interested citizens. The committee has undertaken the removal of inappropriate exotic plant species from the pa and is experimenting with revegetation using seed from native species collected from within the Park (K. Prickett pers. comm).

THE EXCAVATIONS

The investigations took place over six days at Easter 1971, under my direction, with the assistance of up to eight volunteers. The objective was to test the archaeological deposits to assess their complexity and the nature of the occupation. The defences and other visible surface features were mapped.

The site had been covered in thick gorse, privet and other introduced plants. Before the excavation began, Harbour Board staff had carefully cleared the vegetation by hand from the defences and the top flat part of the interior, although scrub remained on the western slopes.

The defensive earthworks, once cleared, are distinct and quite imposing. The interior, however, is relatively featureless, with no visible pits, and only slight indications of artificial levelling. The highest part is the relatively narrow strip adjacent to the cliff on the east side. The land slopes gradually and then more steeply away to the west. A low ridge in one part of the top flat area seemed to indicate levelling on either side, and some very slight scarps suggested minimal terracing on the western slope.

In view of the exploratory nature of the excavation, no attempt was made to investigate the defences. Four areas in the interior were tested, designated Areas A to D (Fig. 3). These four areas were related to a 49 m baseline extending from a peg above the defensive scarp to the southeast corner of the single square in Area D. Excavation was by hand trowel. Most of the deposits were not sieved, but a $\frac{3}{8}$ inch (10 mm) mesh sieve was used for some of the midden deposits in Area C.

Area A

Area A (Fig. 4) was on the most distinct of the low terraces on the cleared part of the western slope. The excavation here consisted of a 2 x 2 m square (Square 1) at the back of the terrace extending up the back scarp, and a 2 x 1 m half square (Square 2) towards the front of the terrace. This front edge was not bounded by a recognisable scarp; the ground simply began to slope away more steeply.

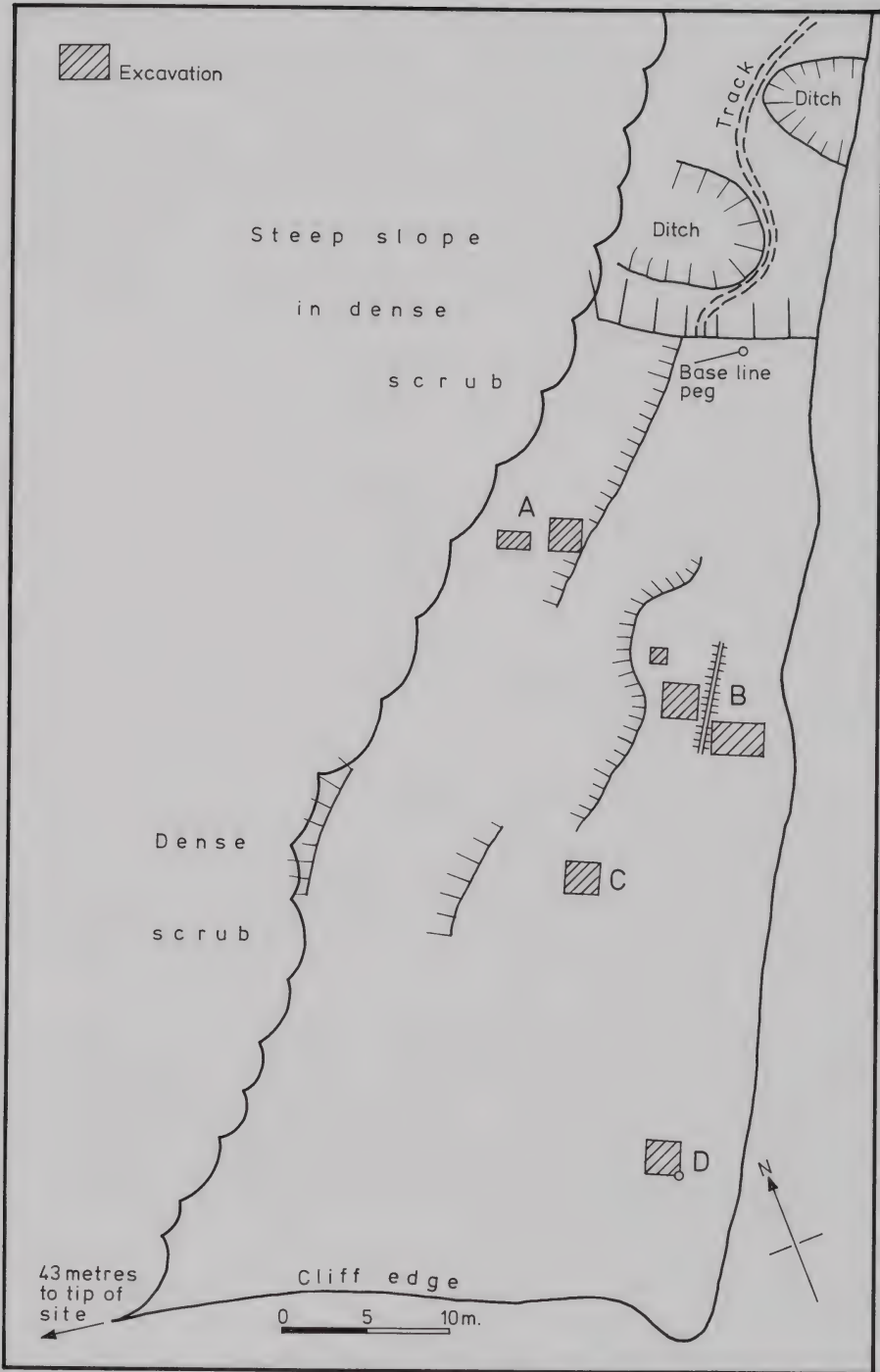


Fig. 3. Surface features and the positions of test excavations on the cleared part of the pa at Kauri Pt, Birkenhead in 1971.

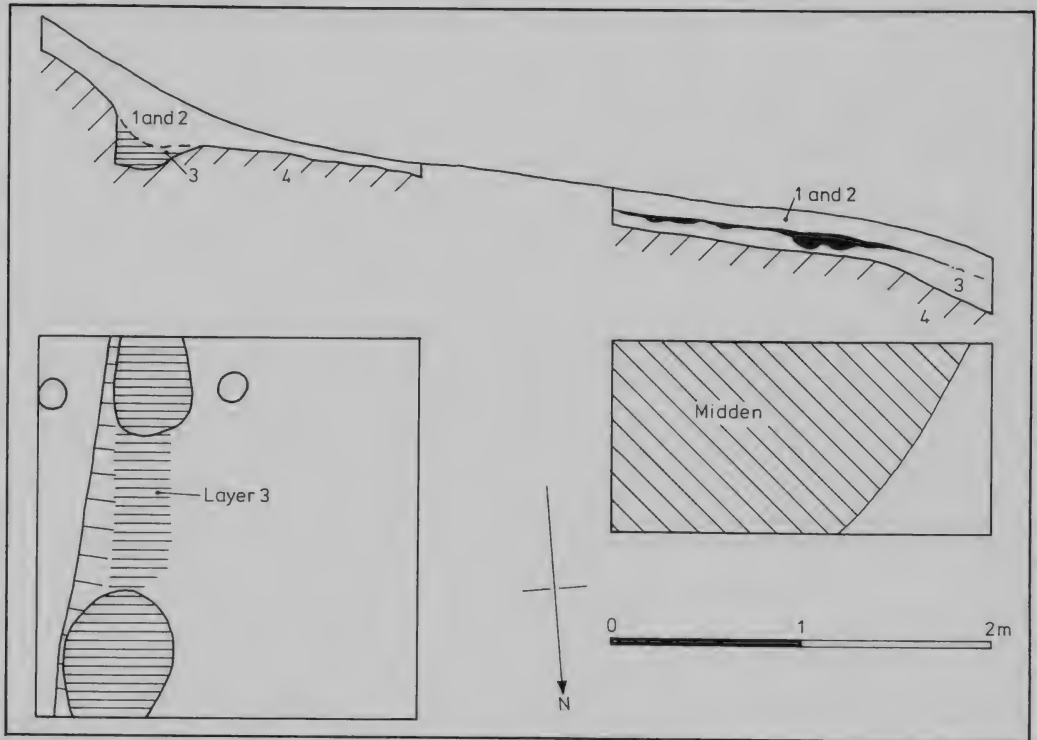


Fig. 4. Plan and cross-section of Area A, Kauri Pt, Birkenhead.

The stratigraphy was very simple. Layer 1 was the loose surface litter and Layer 2 was a grey-black topsoil with a patch of lighter grey sandy material in the northeast corner of Square 1. In much of Square 1, Layer 2 rested directly on Layer 4, undisturbed clay representing the weathered natural sandstone. Layer 3, present over most of Square 2 but restricted in Square 1, was a mixture of clay and soil with shell fragments and occasional stones. On the interface between Layers 2 and 3 in Square 2 was a greater concentration of shell fragments.

There were no features in the front of the terrace. In Square 1, however, there was a low but distinct artificial scarp at the rear of the terrace. At its base was a depression containing Layer 3, which deepened to more drain- or sump-like features also containing Layer 3 at either side of the square. Two postholes, one on the terrace and one on the scarp above, were the only other features. Both were about 20 cm deep and filled with Layer 2.

The midden was similar to midden elsewhere in the site and is discussed below. At the time of excavation, it was assumed to be a primary rubbish deposit. Shell layers have since been identified as deliberately laid flooring in several other sites in the Auckland area (see, for example, Foster & Sewell 1989: 11) and this possibility has to be considered at Kauri Pt. However, the restricted distribution and content of midden deposits in this site still make primary midden the most likely interpretation.

The excavation demonstrated that in this area there was a deliberately constructed terrace with what was probably initially intended as a drain at its rear. The terrace was constructed by making a modest cut back into the natural clay. The purpose of the terrace was not clear from the small excavation. There was no sign of a dwelling, or of use of this part of the terrace for cooking.

Area B

Three squares were excavated in Area B. Square 1 was to the east of the low central ridge in this area. It was originally 2 x 2 m with a 2 x 1 m extension to the east. Squares 2 (2 x 2 m) and 3 (1 x 1 m) were to the west of the ridge.

Stratigraphy was similar to Area A. Layer 1 was the surface litter, Layer 2 topsoil, Layer 3 a mixture of soil and clay, and Layer 4 a harder clay surface. In Squares 2 and 3 and in the southeastern part of Square 1 this appeared to be a largely unmodified natural profile. There was some indication that the low central ridge was at least partly artificial — formed by cutting down slightly into the natural ground surface — but this was by no means as clear as the terrace construction in Area A. Cultural material, in the form of stone flakes and other pieces of stone, was concentrated at the interface of Layers 2 and 3, although it was generally not possible to identify a definite surface at this point. There was very little midden, tiny patches in Squares 1 and 2, and none in Square 3.

Very few features were present. A single shallow posthole was recorded in Square 2, and no features in Square 3. In Square 1, the surface was considerably disturbed by rootholes, some of which could be confused with post and stake holes. There were at least eight shallow postholes, forming no noticeable pattern. Along the northern edge of the square were three shallow scoop depressions, one of which contained traces of charcoal and ash. A cluster of burned stones, apparently hangi stones, was sitting on the scarp in the western part of the square, but no actual hangi pit was found within the excavation.

It can be tentatively concluded that Squares 2 and 3 were in an open unmodified part of the site. Square 1, on the other hand, did appear to be in an area that had been slightly and roughly levelled and on which there may have been a flimsy structure of some kind.

Area C

Area C was on sloping ground below the central ridge. Again the stratigraphy was very similar. Layer 3 in this area was a thin deposit of whole and fragmentary shell midden mixed with soil, and was similar to Layer 3 in Area A. It was present throughout the square except for a small part in the northeast. There was one definite posthole 35 cm deep in the southeast of the square, and several shallow irregular depressions which may have been root disturbances.

Area D

Area D was located in the highest part of the site, in what appeared likely to have been the tihi area. The underlying natural was very variable in this square, ranging from pale grey sandy material through yellower sand to yellow clay. An iron pan was present in places. A scatter of cultural material was found at the base of the topsoil, but there was no midden at all. Three postholes were identified.

Discussion

The excavation revealed only limited use of the site. Considerable effort would have been put into the construction of the defences, but this effort was not matched by structural activity in the interior. It seems unlikely that there have ever been storage pits on the site, which is not surprising considering the poor potential of the vicinity for gardening. The occupants appear to have contented themselves with slight terracing of the gentle slopes to provide flat surfaces for activities.

The site presents a marked contrast to many others that have been excavated in the Auckland area. It lacks both the numerous refilled pits and the thick deposits of midden and cooking debris that are characteristic of the volcanic cones and pa in more densely occupied locations, and also of some undefended settlements. In view of its apparently strategic location, this lack of evidence of prolonged or repeated occupation was surprising.

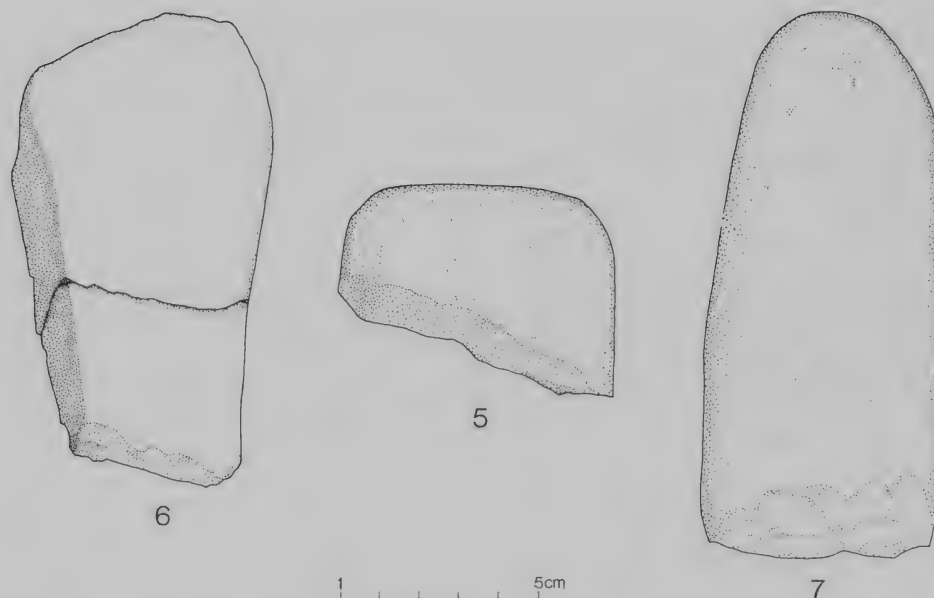
ARTEFACTS AND OTHER PORTABLE OBJECTS

Because so few pieces of stone or other artefacts were encountered in the excavations, both worked and unworked stone was retained. The stone assemblage excluding obsidian was studied by Prickett (1989) and her findings are summarised here. She has recently examined the obsidian and her description is included here as Appendix 1.

Finds from Area A included one piece of bottle glass from Layer 2 in Square 1 and a small collection of worked and unworked stone from Layers 2 and 3, mostly from Square 1. A battered, squarish cobble of basalt had subsequently been used as a hangi stone (Fig. 5) and a basalt pebble had been used as a hammer. There was a single piece of obsidian. Fourteen pieces of unworked stone included pieces of basalt, scoria, sandstone and greywacke, some of which had been used in hangi. There was one piece of kauri gum, apparently unused.

The largest assemblage came from Area B. Square 1 contained an 1897 penny, 2 small cartridge cases and 11 pieces of bottle glass, the latter mostly from the eastern side. This square also yielded the largest amount of prehistoric material, although Square 2 also produced a number of items.

A substantial part of a sandstone abrader was found in Square 1 (Fig. 6). It is in two pieces which join to form a used surface 12 cm long and 4-6 cm wide. The two long sides have also been used for grinding but the entire piece has broken off a larger



Figs. 5-7. Stone artefacts from Kauri Pt, Birkenhead. 5. Battered cobble, Area A. 6. Sandstone abrader, Area B. 7. Worked cobble, Area B.

block, so it is not known how thick the original object was, how wide the used sides were, and whether the fourth surface was also used. The complete surviving surface is slightly concave and could have been used for sharpening small adzes or chisels. Twelve pieces of sandstone which may be from one large shattered grindstone were found in the eastern part of Square 1. Four show signs of grinding. Three other pieces of grindstones were found in Area B. All these grindstone pieces are of local sandstone except one, which may be from South Auckland.

A heavy cylindrical basalt cobble (Fig. 7) from Square 2 has had flakes detached from one end, and the other end shows signs of hammering. It is not clear whether this was the beginning of an adze blank, or whether it had simply been used as a hammer and a source of flakes.

The worked stone from this area also includes 2 flakes of basalt, 3 flakes of andesite, 2 flakes of meta-argillite, 12 flakes of greywacke, a greywacke spall with a ground edge, and a large knapped piece of greywacke. The flakes vary considerably in size and include both "used" and waste flakes. Of 30 pieces of chert, only 2 have used edges, most show heat alteration, and 20 are probably from one shattered pebble. Eighteen pieces of obsidian include both used and unused flakes, as well as three tiny water worn pebbles, two of which are unmodified. Unworked stone from this area included pieces of basalt, scoria, meta-argillite and meta-greywacke, greywacke, sandstone, iron deposit, and mudstone. Some were heat shattered fragments, presumably derived from hangi stones. There was a single piece of kokowai.

Area C produced two basalt spalls with ground edges, three waste flakes of greywacke, and six waste flakes of chert. There were 7 heat shattered pieces of basalt, 26 pieces of scoria, all but one apparently hangi material, 2 fragments of sandstone, 1 heat shattered fragment of argillite and 1 piece of kokowai. A cartridge case was found on the surface of layer 3.

Area D produced a heavily corroded metal button about 14 mm in diameter, one piece of kauri gum, and two joining pieces of concretion which showed signs of battering and abrasion.

These finds suggest that Area B, on the central ridge, was a place where the inhabitants of the site gathered to work at artefact manufacture and repair. The grindstones and some of the other stone material seem to reflect men's activities, but Prickett suggests that some of the obsidian may have been used in flax or other fibre working. Area D, in the highest part of the site, was kept clear of both food and other debris. Whatever activities took place in Areas A and C, other than food dumping, relatively few traces of industrial activity were deposited there.

Prickett (1989) has discussed the sources of stone other than obsidian in some detail and drawn attention to the importance of the Albany Conglomerates as a source of stone for these people. The immediate vicinity of the site provided sandstone for abraders, but the basic need for hangi stones, as well as the need for raw materials for tools, had to be satisfied by imports. Some scoria and basalt from the Auckland Volcanic field was used for hangi stones, but basalt pebbles from the Albany Conglomerates seem to have been the preferred material. The nearest occurrence would be at Riverhead in the upper harbour. The Albany Conglomerates also provided material for flake tools. The Waiheke Group rocks were another important source of raw material including greywacke for flake tools and probably for adzes, and rather poor quality chert for cutting tools. A small amount of good quality chert was obtained from the Coromandel.

OBSIDIAN SOURCES

All nineteen pieces of obsidian from the excavations were analysed by the PIXE/PIGME accelerator technique at Lucas Heights, Australia. Absolute concentrations were calculated for 15 elements. The results for each artefact were compared with accumulated data from 18 sources of obsidian from New Zealand (Leach 1989). The sources are summarised in Appendix 1.

Seven pieces can be sourced with confidence to Mayor I. Four other pieces could be allocated with confidence to a single source area using the Popper's Razor algorithm (Leach & Manly 1982). Two are from Huruiki in Northland, one is from the Inland North Island sources, and one is from Fanal I.

The remaining eight pieces cannot be definitely sourced using this method. More than one source is statistically possible in seven cases. Four pieces are either from Huruiki or Great Barrier (Awana or Arid I); one could be from Huruiki, Hahei (Coromandel) or Arid I; one could be from Huruiki, Coromandel (Hahei or Cooks Bay) or Rotorua. The eighth piece could not be allocated to any known source in New

Zealand or the Pacific. Hand specimen examination of this piece confirms that it is obsidian and not bottle glass; its elemental composition is also inconsistent with artificial glass.

The 3 tiny pebbles were included among the 19 items analysed. Pebbles of this kind have been observed on Coromandel beaches and in the Waikato River catchment. They are probably common in all areas where detrital obsidian occurs, and would normally not be noticed. They have not previously been reported from archaeological sites, but they may have passed unnoticed in sites where stone material of all kinds is more abundant. The presence at Kauri Pt. of such pebbles from at least two different source areas may be a reflection of the difficulties experienced by Kauri Point people in obtaining obsidian and chert, and the fact that for them, any obsidian at all might be better than none. Alternatively, as Prickett suggests, they may have been obtained for a special purpose.

The full range of possible sources identified was represented by the ten pieces from Square 2 in Area B. The three pebbles, the unknown, and one of the Huruiki pieces were from this square. By contrast, there were three pieces from Mayor I and one from Huruiki from Square 1, one Mayor I piece from the eastern extension to Square 1, and two Mayor I and one Huruiki or Barrier from Square 3. The single piece from Area A was also Huruiki or Barrier.

There is a prevailing view (expressed recently by Ruddock 1988) that obsidian in the Auckland region came mostly from Mayor I or Great Barrier I. This view has partly developed as a result of earlier work on obsidian sourcing. However, Leach & Manly (1982) have shown that the earlier results are not particularly reliable. They have also demonstrated the need for extreme rigour in the statistical approach to source allocation; a plea which seems to have been ignored in some more recent work. The Kauri Point assemblage shows that these apparently hard pressed people were receiving very small amounts of obsidian from most, if not all, of the major source areas.

It is only rarely that a complete assemblage can be analysed in this way. It was possible in this case only because the assemblage was so small. The results, however, provide a cautionary tale against analysing a very small sample of "grey" pieces with the assumption that they are most likely to derive from a Great Barrier I source.

MIDDEN

The only deposits that were sieved were the Layer 3 midden in the south-west quadrant and the lower part of the Layer 3 midden in the south-east quadrant of Area C. Midden material was collected by hand during trowelling of the remaining deposits in Area C and throughout Areas A and B. No midden at all was found in Area D.

Bone

Bone fragments were extremely rare in the deposits.

A minimum number of two fish came from Area C: one snapper (*Chrysophrys auratus*) and one elasmobranch. The snapper was identified from two cranial bones and the elasmobranch from three small vertebrae. Eighteen unidentifiable fragments of fish bone were recovered from Area C and two from Area A. These few remains were in quite good condition, suggesting that poor preservation was not the reason for the paucity of bone recovered. It would appear that if the occupants of the site were there for fishing, as traditional accounts suggest, they were preserving their catch and taking it elsewhere, rather than consuming it on the site.

A piece of mammalian bone from Area A, Square 1, Layer 3, was identified as ilium fragment from the left pelvis of a dog. One other piece, not from the test excavations but from a midden exposure in the track down to Kendall Bay, is a cranial fragment which may also be dog, but could not be determined with certainty. The presence on the site of at least one dog is consistent with what is known from other sites in the Auckland area.

Shell

In the laboratory, the shells were sorted into species, and minimum numbers were calculated in the case of bivalves by counting valves with intact hinges and dividing by two, and in the case of gastropods by counting protoconches and opercula where present and taking the larger number. The results are given in Tables 1 and 2. It should be remembered that only the samples from the sieved deposits in Area C can be relied on as free from collector bias. There was undoubtedly more shell in Areas A and B than was retained, but the amounts were still very small.

The principal species were pipi (*Paphies australis*) and cockle (*Chione stutchburyi*) which were probably obtained locally, together with the mudsnails (*Amphibola crenata*). The few tuatua (*Paphies subtriangulata*) would have come from further afield. These shells were all quite well preserved. This was not true of the rocky shore species, which were recovered in more fragmentary condition, particularly the mussels and oysters, for which both species and minimum numbers were difficult to ascertain. The oysters were almost certainly all the northern rock oyster, *Crassostrea glomerata*, but the mussels may include species other than the northern blue mussel, *Perna canaliculus*. The relatively large number of slipper shells (Calyptraeidae) is unusual. They included both *Maoricrypta* and *Sigapatella* spp. These presumably reached the site accidentally, attached to larger and more edible shells. The other gastropods included *Diloma*, *Cominella*, *Thais* and *Haustrum* spp. representing both estuarine and rocky shore environments.

The small amount of midden is consistent with the lack of structural features and the small range of artefactual material recovered. The content of the midden suggests consumption of a small amount of shellfish and fish, largely gathered locally, during what appears to have been a brief occupation of the site. Despite the presence of quite a number of shells that would not have provided food, notably the slipper shells and some small spiral gastropods, the bulk of the shell fish remains do appear to be food debris, rather than deliberately laid flooring. The inedible species are most likely to have arrived at the site attached to the edible species, particularly the rock oysters.

Table 1. Minimum numbers of shellfish from Area C.

| | 1* | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------------|----|-----|----|-----|-----|----|------|
| <i>Paphies australis</i> | 11 | 213 | 32 | 188 | 58 | 1 | 503 |
| <i>Chione stutchburyi</i> | 22 | 284 | 38 | 276 | 181 | 4 | 805 |
| <i>Amphibola crenata</i> | 3 | 20 | 1 | 11 | 20 | 1 | 56 |
| <i>Paphies subtriangulata</i> | | 3 | | 4 | | | 7 |
| Mytilidae | | 6 | | 3 | | | 9 |
| <i>Crassostrea glomerata</i> | 3 | 15 | | 20 | | 4 | 42 |
| <i>Turbo smaragdus</i> | 3 | 49 | 3 | 86 | 20 | 3 | 164 |
| Calyptraeidae | | 15 | 1 | 15 | 1 | | 32 |
| Other gastropods | 2 | 7 | 1 | 9 | 5 | 1 | 25 |
| Totals | 44 | 612 | 76 | 612 | 285 | 14 | 1643 |

*1. Layer 2, whole square.

2. Layer 3, southwest quadrant.

3. Layer 3 upper, southeast quadrant.

4. Layer 3 lower, southeast quadrant.

5. Layer 3, north half.

6. Posthole fill.

7. Total.

Table 2. Minimum numbers of shellfish from Areas A and B.

| | 1* | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------|----|---|----|-----|-----|----|----|
| <i>Paphies australis</i> | 5 | | 16 | 508 | 529 | 17 | 3 |
| <i>Chione stutchburyi</i> | | | 56 | 20 | 76 | | 4 |
| <i>Amphibola crenata</i> | | | | 6 | 6 | | |
| Mytilidae | | | 1 | 4 | 5 | | |
| <i>Crassostrea glomerata</i> | | 1 | 10 | 13 | 24 | | 3 |
| <i>Turbo smaragdus</i> | | | 8 | 12 | 20 | 1 | |
| Calyptraeidae | | | | 5 | 5 | | |
| Other gastropods | | | 1 | 1 | 2 | | 1 |
| Totals | 5 | 1 | 92 | 569 | 667 | 18 | 11 |

*1. Area A, square 1, layer 2.

2. Area A, square 1, layer 3.

3. Area A, square 2, layer 2.

4. Area A, square 2, layer 3.

5. Area A, total.

6. Area B, square 1.

7. Area B, square 2.

CONCLUSIONS

The test excavations at this site have revealed a very different picture of Maori activity in Auckland from that obtained from excavations on and around the volcanic cones. Despite its position and natural defences, the pa appears to have been only briefly occupied by people who left few traces of their presence. More extensive excavations would probably reveal more structural features in the interior, but it is unlikely that a complex occupation history would be revealed anywhere on the site.

The use of the site does not seem to match the investment of labour that was needed to build the defences. The most likely explanation is that the pa was constructed by people who visited Kendall Bay for seasonal fishing, as traditions relate, but that most of their activities took place down in the bay. There are several possible reasons for the construction of such a pa. It may have been intended to proclaim the mana of the leader of the group; it may have been intended to assert the group's rights to the area; it may have been an insurance against surprise attack while the group were in residence at Kendall Bay. All of these factors may have contributed to a perceived need to build a pa at this location. However, the sparseness of its occupation history suggests that the sort of activities which took place in this part of the Waitemata throughout prehistory were of a kind not normally associated with pa building.

Acknowledgements. I am grateful to the staff of the Auckland Harbour Board who assisted with practical aspects of the investigations in 1971, and to those who took part. I am much indebted to Roger Bird of Lucas Heights for the PIXE/PIGME analysis of the obsidian, and to Foss Leach for interpretation of the results. I particularly wish to thank Kath Prickett for her work on the stone assemblage, and for her continuing interest in the site and its future. Fish bones were identified by Angela Boocock and mammalian bones by Ian Smith, both of the Anthropology Department, University of Otago. Illustrations were drawn by Martin Fisher, Jane Perry and Jadwiga Karas.

APPENDIX 1. OBSIDIAN ANALYSIS

K.E. Prickett

| Number | Context (1)* | Source (2) | Colour (3) | Form (4) | Description |
|--------|--------------|--|--------------------------------------|----------|---|
| KPD | B/2/2 | Mayor I | Green | F | Chunky flake. Three edges heavily worn: unifacial and bifacial edge damage. One edge ground. |
| KPK | B/3/2 | Mayor I | Green (banding) | F | Thin flake with tip broken (for flax/fibre working?). One edge unifacially damaged. |
| KPM | B/3/2 | Mayor I | Green (banding) | F | Well formed flake. Slight edge damage near point. |
| KPO | B/1/2 | Mayor I | Green | F | Tiny thin waste flake. |
| KPQ | B/1/2 | Mayor I | Green (weak banding) | F | Thin flake. Possible light unifacial edge damage. |
| KPR | B/1/2 | Mayor I | Green | ?F | Chunky piece with possible unifacial edge damage and broken point for fibre work? |
| KPS | B/1 (extn) | Mayor I | Green | F | Thin flake, slight unifacial edge damage. Good point for fibre work. |
| KPA | B/2/2 | Huruiki or Gt Barrier | Grey (banding) | F | Long pointed flake, point end broken (deliberately removed?). Two edges with unifacial damage. Largest flake in the assemblage. |
| KPB | B/2/2 | Unknown source | Grey/ brown | F (P) | Thick flake with thin edges. Struck from smoothly pitted pebble. Slight bifacial edge damage. Very translucent. Colour in transmitted light has a distinct brown tinge. |
| KPC | B/2/2 | Gt Barrier or Huruiki | Grey (banded) | F | Thin flake. Unifacial damage on two edges. |
| KPE | B/2/2 | Huruiki or Coromandel or Barrier | Grey (colour banded) | S | Possible slight unifacial edge damage. |
| KPF | B/2/2 | Huruiki | Grey with green tinge (banded) | F | Very thin waste flake. Poor translucency. |
| KPG | B/2/2 | Huruiki or Gt Barrier | Grey | S | Small angular piece. Slight unifacial edge damage on point. |

| Number | Context (1)* | Source (2) | Colour (3) | Form (4) | Description |
|--------|--------------|--|---|----------|---|
| KPH | B/2/2 | Rotorua/ Taupo | Grey | P | Half a pebble. Pebble had a smooth water-rolled cortex before being halved. Point has small bifacially detached flakes. |
| KPI | B/2/2 | Fanal I | Grey (with slight green tinge) | P | A halved, water-rolled pebble, but break is also water-rolled. No surfaces used. |
| KPJ | B/2/2 | Huruiki, Coromandel or Rotorua/ Taupo | Grey (with brown tinge) | P | Small smooth water-rolled pebble, unmodified. |
| KPL | B/3/2/2 | Huruiki or Gt Barrier | Grey | S | Small thin waste piece. Very good translucency. Two surfaces with semi smooth cortex (colluvial indicator?). |
| KPN | A/1/3 | Huruiki or Gt Barrier | Grey (slight brown tinge) | S | Piece of snapped flake with sharp point suitable for flax or fibre work. Edge near point end has unifacial damage. Good translucency. |
| KPP | B/1/2 | Huruiki | Grey (Grey/green in reflected light) | F | Decortication flake? Translucency poor. Rough cortex. Waste piece. |

- * (1) Area/Square/Layer. (2) Leach 1989.
 (3) In transmitted light. 'Banding' refers to presence of flow bands.
 (4) F — flake. S — shatter (none of the characteristics of flake morphology present).
 P — pebble.

Discussion

The results of the obsidian analysis do not fit comfortably with the conclusion drawn from the remainder of the Kauri Point stone assemblage (Prickett 1989). There, the lack of variety of lithologies gave the impression of restricted access to raw materials as a result of political constraints at a presumed late date. Chert from the Coromandel Peninsula was the most distant rock type.

The obsidian results, however, indicate that this material was obtained from Huruiki in Northland, the Great Barrier I source area, Mayor I, and Rotorua/Taupo Volcanic Zone. The four major New Zealand source areas are all represented.

The obsidian pieces are all comparatively small, perhaps demonstrating that despite the variety of sources in circulation, quantity was limited. Another possibility is that this smallness simply reflects the work for which the obsidian was being used. If the area was hosting shark fishers in late summer to coincide with the shark breeding season, great quantities of harakeke (New Zealand flax) would be required to furnish and maintain fishing and processing equipment. Late summer is also the best time to process flax. The areas where the obsidian pieces were excavated may have been the work places of flax weavers. A number of the pieces have points removed (deliberately) and edges suitable for fibre work (Dante Bonica, pers. comm.).

A variety of obsidian source types is apparent from the cortex present. This ranges from completely smooth water-rolled surfaces through moderately smooth surfaces to a rough striated cortex. Thus fluvial, colluvial and an *in situ* source are evident.

What is something of a surprise is the differing source areas assigned to each of the pebbles by the PIXE-PIGME analysis. If indeed three separate sources are involved, it hardly seems reasonable to explain the presence of the pebbles in close proximity at Kauri Pt. as a fortuitous event. This unusual group of pebbles may represent pieces for a game or ritual.

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